



Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221
August 12, 2003

ENTERED



Mr. Steve Zappe, Project Leader
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, New Mexico 87505-6303

RE: Transmittal of the Final Audit Report for the Hanford Site (A-03-14)

Dear Mr. Zappe:

This letter transmits the Hanford Site Audit Report for the processes performed to characterize and certify waste as required by Section II.C.2.c of the WIPP Hazardous Waste Facility Permit. The report contains the results of the audit performed. The audit was conducted June 16-20, 2003.

I certify under penalty of law that this document and all enclosures were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Please contact the CBFO Quality Assurance Manager, Ava L. Holland, at (505) 234-7423 should you have any questions concerning this audit report.

Sincerely,

Dr. Ines R. Triay
Manager

Enclosure

Mr. Steve Zappe

-2-

August 12, 2003

cc: w/o enclosure

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U.S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE

FINAL AUDIT REPORT

OF THE

HANFORD SITE

RICHLAND, WASHINGTON

AUDIT NUMBER A-03-14

JUNE 16 - 20, 2003

FINAL AUDIT REPORT OF WASTE CHARACTERIZATION AND
CERTIFICATION IN ACCORDANCE WITH THE HAZARDOUS WASTE
FACILITY PERMIT



Prepared By: _____

Pete V. Rodriguez, CTAC
Audit Team Leader

Date: _____

8/12/03

Approved By: _____

Ava L. Holland, CBFO
Quality Assurance Manager

Date: _____

8-12-03

1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Audit A-03-14 was conducted to re-evaluate the adequacy, implementation, and effectiveness of the Hanford site transuranic (TRU) waste characterization, transportation, and certification activities. The audit was conducted to evaluate retrievably stored and newly generated debris (Summary Category Group S5000), contact-handled waste at the Waste Receiving and Processing (WRAP) facility. The audit also assessed newly generated debris (S5000) and homogeneous solids (S3000) characterized at the Plutonium Finishing Plant (PFP), WRAP and T-Plant, as applicable. In addition, the audit evaluated the procedures and processes for assay and packaging of waste at the PFP. Waste streams from S3000 will require additional assessment to verify complete characterization activity (i.e., the analysis by the INEEL and project-level validation and verification (V&V) of S3000 solids is pending).

The audit was conducted at the Hanford site during the week of June 16 - 20, 2003. The audit team concluded that the Hanford technical and quality assurance (QA) programs and procedures continue to be adequate relative to the flow down of requirements from the CBFO Quality Assurance Program Document (QAPD) and the Waste Analysis Plan (WAP) of the Hazardous Waste Facility Permit (HWFP). The audit team also concluded that the defined QA and technical processes for the audited activities continue to be implemented in accordance with the Hanford Quality Assurance Project Plan (QAPjP) and implementing procedures, and that the processes are effective.

The deficiencies identified in the corrective action reports (CARs) discussed in Section 6.0 have been subsequently corrected. The audit team also concluded that the QA program is being satisfactorily implemented and that the Hanford technical processes evaluated are satisfactorily implemented and effective.

The audit team identified two conditions adverse to quality that resulted in the issuance of two WAP-related CBFO CARs requiring corrective action in the areas of Project Level V&V/Real Time Radiography & Visual Examination (RTR & VE); and Acceptable Knowledge (AK). Four isolated deficiencies requiring only remedial corrective action were corrected during the audit (CDA). Two Observations were identified, and four Recommendations are being offered for Hanford management consideration. The CARs and CDAs are described in Section 6.0 and the Observations and Recommendations are described in Section 7.0.

2.0 SCOPE AND PURPOSE

2.1 Scope

The audit team evaluated the continued adequacy, implementation, and effectiveness of technical and QA processes related to Hanford TRU waste characterization and certification activities.

The following elements were evaluated in accordance with the CBFO QAPD:

- Organization/QA Program Implementation
- Personnel Qualification and Training
- QA Grading
- Documents and Records
- Procurement
- Control of Measuring and Test Equipment
- Control of Nonconforming Items/Corrective Action
- Audits/Assessments
- Sample Control
- Software Quality Assurance

The following CBFO technical characterization elements were evaluated in accordance with the WAP:

- Sample Design
- Headspace Gas (HSG) Sampling at T-Plant
- HSG analysis using cryofocusing gas chromatography/mass spectrometry (GC/MS) for S3000 and S5000 **(New)**
- HSG sampling including gas-tight seal option for pipe overpack components (POCs) and drums and side port sampling (S3000 and S5000) at T-plant and WRAP **(New)**
- Solid Sampling at PFP (S3000) **(New)**
- Chain-of-custody process for HSG SUMMA[®] canisters to be sent for analysis at the Idaho National Engineering and Environmental Laboratory (INEEL) **(New)**
- Nondestructive Examination/Real-Time Radioscopy (NDE/RTR) - (two RTR units at WRAP)
- Visual Examination at WRAP (S5000)
- Visual Examination Technique at PFP (S3000 and S5000)
- Performance Demonstration Program (HSG)
- Data Verification & Validation
- Acceptable Knowledge
- Waste Stream Profile Forms
- Waste Isolation Pilot Plant (WIPP) Waste Information System (WWIS)

Evaluation of Hanford TRU Waste Characterization Program documents was based on current revisions of the following documents:

- Hanford Site Quality Assurance Project Plan (QAPjP) for the Transuranic Waste Characterization Program*
- Hanford Site Transuranic Waste Certification Plan*
- Related Hanford technical and QA implementing procedures

3.0 AUDIT TEAM, INSPECTORS, AND OBSERVERS

AUDITORS/TECHNICAL SPECIALISTS

Ava Holland	CBFO QA Manager
Pete Rodriguez	Audit Team Leader, CBFO Technical Assistance Contractor (CTAC)
Earl Bradford	Auditor, CTAC
Steven Calvert	Auditor, CTAC
Prissy Dugger	Auditor, CTAC
Charlie Riggs	Auditor, CTAC
Jim Schuetz	Auditor, CTAC
Dee Scott	Auditor, CTAC
Jack Walsh	Auditor, CTAC
Chet Wright	Auditor, CTAC
Jimmy Wilburn	Observer, CTAC
Dennis Miehl	CBFO Representative
Dick Blauvelt	Technical Specialist, CTAC
Karen Gaydosh	Technical Specialist, CTAC
Dorothy Gill	Technical Specialist, CTAC
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Todd Sellmer	Technical Specialist, Westinghouse TRU Solutions (WTS)
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OBSERVERS

Connie Walker	New Mexico Environment Department (NMED)/Tech Law - Observer
Robert Thielke	NMED/TEA - Observer
Steve Holmes	NMED Observer
Steve Zappe	NMED Observer
Jim Channell	Environmental Evaluation Group (EEG) Observer

4.0 AUDIT PARTICIPANTS

Hanford individuals involved in the audit process are identified in Attachment 1. A preaudit meeting was held at 2420 Stevens Drive, Conference Room 153, on June 16, 2003. A daily meeting was held with Hanford management and staff to discuss issues and potential deficiencies. The audit was concluded with a postaudit meeting held at 2420 Stevens Drive, Conference Room 153, on June 20, 2003.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy and Implementation

This audit was performed to assess Hanford's continued ability to characterize S5000 contact-handled waste at the WRAP facility. The audit also assessed S3000 and S5000 wastes characterized at the PFP, WRAP, and T-Plant, as applicable. In addition, the audit also evaluated the procedures and processes for assay and packaging of waste at the PFP. S3000 waste streams will require additional assessment to verify complete characterization activity (i.e., the analysis by the INEEL and project level V&V of S3000 solids is pending). The characterization methods assessed were HSG sampling, solids sampling, HSG analysis, AK, RTR, VE, and Visual Examination Technique (VET). Data review, validation, and use of results from these activities to perform data quality objective (DQO) reconciliation and prepare a Waste Stream Profile Form (WSPF) were assessed.

A newly generated waste stream was examined from S5000 (Sand, Slag and Crucible). This waste stream is comprised of pulverized sand, slag, and crucible (SS&C) pieces from operations in the remote mechanical line "C" (RMC) in Building 234-5Z at the PFP. The previously examined waste streams from S3000 and S5000 consisted of Hanford incinerator ash, Rocky Flats ash, and retrievably stored and newly generated debris (see A-02-23 and A-01-16).

The audit team concluded that the applicable Hanford TRU waste characterization activities, as described in the associated Hanford implementing procedures, satisfactorily meet the requirements contained in the HWFP. The deficiencies identified in Section 6.1 have been corrected. Details of audit activities, including specific objective evidence reviewed, are described below and in the attached B6 checklist. The B6 checklist identifies the Hanford program documents and procedures in which the WAP requirements are met. Attachment 3 contains examples of the objective evidence reviewed during the audit.

5.2 Technical Activities

5.2.1 Table B6-1 WAP Checklist

The B6-1 WAP checklist addresses program requirements from an overall management perspective. It documents the verification that the waste characterization strategy, as defined in the WAP, is implemented by using controlled procedures. This audit was performed to assess Hanford's continued ability to characterize S5000 debris waste streams and the processes for VET and solids sampling of newly generated debris (S5000) and homogeneous solids (S3000) characterized at the PFP, WRAP, and T-Plant, as applicable. Objective evidence to evaluate the implementation of the associated characterization activities was selected and reviewed. Batch data reports, sampling records, and training documentation for TRU Waste Characterization Program

associated with gas sampling and analysis, solids sampling, RTR, VE, VET, and WWIS data entry. Each characterization process involves:

- Collecting raw data
- Collecting quality assurance/quality control (QA/QC) samples or information
- Reducing the data to a useable form, including a standard report
- Review of the report by the data generation facility and the site project office
- Comparing the data against program DQOs
- Reporting the final waste characterization information to WIPP

The flow of data from the point of generation to inclusion in the WSPF was reviewed for each characterization technique to ensure that all applicable requirements were captured in the site operating procedures. Specific procedures audited and the objective evidence reviewed are described in more detail in the following sections.

Hanford demonstrated compliance with the characterization requirements of the WAP in documentation and in characterization activities performed. Hanford provided combined sampling and analysis batch data reports WSCF-030414, WSCF-030421, WSCF-030422 and WSCF-030514 (containing sampling and gas analytical batch information); radiography batch data reports WR-TB-2003-035, WR-TB-2003-051, WR-TB-2002-085, WR-TB-2003-017, WR-TB-2002-092 and WR-TB-2002-026; VE batch data report WR-TB-2002-035; and VET batch data reports PFP-VE-2002-019 and PFP-VE-2002-012. The project-level data verification and validation process was evaluated by reviewing the following batch data reports (copies of all the referenced batch data reports are included in Attachment 3):

- WR-TB-2003-035 (RTR)
- WR-TB-2003-051 (RTR)
- WR-TB-2002-085 (RTR)
- WR-TB-2003-017 (RTR)
- WR-TB-2002-092 (RTR)
- WR-TB-2002-026 (RTR)
- WR-TB-2002-035 (VE)
- PFP-VE-2002-019 (VET)
- PFP-VE-2002-012 (VET)
- WSCF-030414 (HGAS)
- WSCF-030421 (HGAS)
- WSCF-030422 (HGAS)
- WSCF-030514 (HGAS)

AK and the auditable records were reviewed in detail for waste streams S5000 and S3000. The AK record was reviewed to demonstrate that the required information was present and correctly interpreted. Batch data reports WSCF-030422, WR-TB-2002-002, WR-TB-2002-008, and PFP-VE-2002-016, in addition to the batch data reports cited above, were used to demonstrate confirmation of AK, reconcile DQOs, prepare a WSPF, and transmit data to WIPP using the WWIS.

A WSPF and related summarized characterization information were reviewed to establish the objective evidence for reporting waste characterization information to WIPP. The form was completed using information from characterization processes. An actual WSPF has been prepared and was submitted to CBFO prior to any shipments, as required. The form was reviewed and approved by the CBFO when the waste stream had been fully characterized, and the site was approved to ship waste.

5.2.2 Table B6-2 Solids and Soils/Gravel Sampling Checklist

The audit team evaluated the solids sampling procedure and process at the PFP during a demonstration performed by Hanford personnel. The audit team also examined the documentation generated during the demonstration and no issues were identified for this process. The VET being used for characterizing waste at the PFP facility, as applied to homogeneous solids (S3000), was also evaluated through the review of data packages.

S3000 waste streams will require additional assessment to verify complete characterization activity (i.e., the analysis by the INEEL and project level V&V of S3000 solids is pending). Accordingly, no Hanford S3000 or S4000 waste will be accepted for disposal at WIPP until the procedures and processes are completely assessed and accepted by CBFO, and the NMED has approved the final audit report.

5.2.3 Table B6-3 Acceptable Knowledge Checklist

This audit was performed to assess Hanford's ability to characterize S5000 and S3000 retrievably stored and newly generated debris and homogeneous solids waste streams. Items on the AK checklist are intended to ensure that Hanford has AK processes in place to:

- Train personnel in data collection requirements
- Assemble collected data into a coherent narrative detailing the waste generation and constituents
- Segregate the waste into like waste streams
- Provide Resource Conservation and Recovery Act (RCRA) characterization for those waste streams
- Confirm those characterizations using sampling and analysis
- Provide an auditable set of records to support the characterization

The AK process was evaluated by reviewing AK summary reports, source documents, and other applicable documentation related to PFP mixed and non-mixed debris waste streams, SS&C debris from PFP, and a solids waste stream that was shipped from the Rocky Flats Environmental Technology Site (RFETS). Specific AK documents reviewed included: HNF-3461, *Hanford Site TRU Waste Management Program AK Documentation for Retrievably Stored Contact Handled Waste*; HNF-5482, *Hanford Site TRU Waste Management AK Documentation for the Plutonium Finishing Plant*; and HNF-5481, *Hanford Site TRU Waste Specific AK Documentation for PFP Non-*

Mixed Debris. Other upper-tier AK summary documents were examined for mixed PFP debris (HNF-6489), SS&C, and Rocky Flats ash.

The AK checklist was completed, in part, by reviewing the documents noted above. Additional documentation supporting the AK summary documents and AK source document review summaries are contained in Attachment 3 to support the entries in Table B6-3.

The AK process includes provisions to identify information that conflicts with what is expected in a waste stream (confirmation processes) and a method by which these conflicts can be resolved. The discrepancy resolution procedure is WMH-400, Section 7.1.9, *Acceptable Knowledge Documentation Management*. Procedure WMH-400, Section 7.1.1, *TRU Waste Characterization DQO Reconciliation and Reporting*, was also evaluated during the audit.

The procedures cited above, which are used by the site to assemble, evaluate, document, and reconcile sampling and analysis results were reviewed for adequacy, and their implementation was assessed during the audit. The AK requirements include procedure content and specific requirements for retrievably stored waste, and ensure that the AK summary includes all mandatory information required by the WAP.

Reports and records used to document the basis of Hanford AK were evaluated; copies of pages used for objective evidence can be found in Attachment 3. The reports were found to be satisfactory and the records properly maintained as QA records. Attachment 3 contains a list of AK documentation reviewed in support of Procedure WMH-400, Section 7.1.1.

Traceability reviews on containers from the PFP mixed debris stream, the SS&C debris stream, and the Rocky Flats ash stream were conducted by the auditors. This involved looking at the AK record for those streams, confirmatory test data and other supporting AK documentation such as the AK confirmation checklist, the waste stream profile forms, DQO checklists, and characterization information summaries. All of this information was in order for the debris streams. However, confirmatory activities and the requisite waste stream profile forms have not been completed for the Rocky Flats ash solids stream (S3000). Therefore, the AK decision for this stream was indeterminate. (See Observation 1 in Section 7.1.) There was also a question raised regarding the applicability of the RFETS solids data performed at RFETS to the ash inventory at Hanford. The NMED observers have submitted an observer inquiry to CBFO regarding this issue, which is being resolved under separate cover.

One deficiency associated with inadequacies in the AK accuracy report for failing to capture instances where RTR found lead in the non-mixed PFP debris inventory was identified and is discussed in Section 6.1. This CAQ was determined to be non-significant and has been satisfactorily resolved and closed (CBFO CAR 03-064).

A recommendation regarding improvement in the AK program TRU waste inventory tracking was offered for consideration (Recommendation 1, Section 7.2). It should be noted that the NMED observers conveyed several concerns, observations and

recommendations for consideration. These issues are reflected in the previously cited CAR 03-064 and Observation 1. Recommendations 3 and 4 also reflect NMED concerns and subsequent recommendations. These recommendations relate to the technical content and clarifications of AK summaries as well as enhancements to the AK procedure (Recommendations 3 and 4, Section 7.2).

Four issues were identified that relate to the AK summaries and source documents (CDAs 1 - 4, Section 6.2). The issues were determined to be isolated deficiencies and were satisfactorily corrected during the audit (CDA).

This audit verified that Hanford is satisfactorily implementing the AK process to delineate, characterize, and confirm the characterization of waste for disposal, in accordance with WIPP WAP requirements.

5.2.4 Table B6-4 Headspace Gas Checklist

This audit was performed to assess Hanford's ability to characterize S5000 and S3000 retrievably stored and newly generated debris and homogeneous solids waste streams. HSG sampling and analysis operations at Hanford, including solids sampling operations, were evaluated by examining the sampling and analysis equipment, conducting personnel interviews, and reviewing selected HSG batch data reports for actual sample collection and analysis of SUMMA[®] canister samples and for sample canister assemblies (SCAs). The following procedures were evaluated:

WMP-400, Section 7.1.7, *TRU Waste Sample and Waste Container Management Activities*

WMP-400, Section 8.1.1, *Logkeeping Practices for WIPP Activities for Headspace Gas Sampling and Analysis*

WMP-400, Section 8.1.8, *Data Management for Headspace Gas Sampling and Analytical Results*

LO-080-407, *Cleaning Summa Canisters for TRU HSG Sampling*

LA-523-410, *Determination of VOCs in TRU/Mixed Waste Container Headspace*

LO-090-450, *TRU Project Sample C-O-C, Storage, Acceptance, and Disposal*

DO-080-009, *Obtain Headspace Gas Samples of TRU Waste Containers*

ZO-160-082, *Residue Solid Sampling*

The HSG sampling and analysis process was audited by evaluating and inspecting the sampling equipment and analytical laboratory, and reviewing available HSG batch data reports. Sampling and analytical batch data reports are combined into a single report. Batch data reports were reviewed to evaluate sampling and analysis results against WAP requirements (batch data reports WSCF-030414, WSCF-030421, WSCF-030422 and WSCF-030514).

A determination was made that the only sampling performed at T-Plant is done through the carbon filter of TRU waste drums. A demonstration of HSG sampling of a POC and HSG sampling using a side-port filter was also demonstrated for the audit team and the

NMED representative at the WRAP facility. This demonstration was performed to allow the NMED to re-examine the processes previously assessed during CBFO Surveillance S-03-14, on April 29, 2003.

The solids sampling procedure (ZO-160-082) and process at the PFP was evaluated while Hanford personnel performed a demonstration of the solids sampling process. The audit team also examined the documentation generated during the demonstration and no issues were identified for this process.

Documentation specific to these activities (e.g., calibration records, maintenance logbooks, and instrument logbooks) was reviewed to ensure that laboratory operations met QA requirements, as specified in the WAP. Copies of the applicable documentation reviewed are included in the batch data reports and excerpts in Attachment 3.

Assessing the implementation of the procedures listed above completed the Table B6-4 HSG checklist. Sampling and analysis operations were evaluated and verified through review of the batch data reports and documents noted above.

Equipment is controlled to ensure that it does not contaminate samples. Sample integrity is protected using procedure LO-090-450, *TRU Project Sample Chain-of-Custody, Storage, Acceptance, and Disposal*. Copies of the chain-of-custody (COC) and sample canister information documents are included in the batch data reports.

Sample collection is assessed by collecting QC samples and evaluating the process against specific quality assurance objectives (QAOs). Sample collection is controlled by Procedure DO-080-009, *Obtain Headspace Gas Samples of TRU Waste Containers*, and analysis of samples is controlled by procedures LA-523-410, *Determination of VOCs in TRU/Mixed Waste Container Headspace*. Review of the results to ensure they meet program QAOs is controlled by WMP-400, Section 8.1.8, *Data Management for Headspace Gas Sampling and Analytical Results*. Sampling QAOs are assessed after the QC samples are analyzed and are documented in the analytical batch data report.

The SUMMA[®] canister cleaning procedure (LO-080-407) and operations were also evaluated and examined, as were sampling and analysis logbooks and sample control activities for TRU waste container management, via examination of TRU waste container data packages. Personnel qualifications and training for all areas audited were verified through examination of training records. Measuring and Test Equipment (M&TE) that is used in support of HSG sampling and analysis activities and solids sampling activities was also verified. Pages from the batch data reports that serve as objective evidence for implementation of some activities of the B6-4 checklist are included in Attachment 3.

A recommendation regarding the software used to generate HSG graphical reports was offered for Hanford management consideration (Recommendation 2, Section 7.2).

The HSG sampling and analysis process at Hanford satisfactorily implements the WIPP WAP requirements.

5.2.5 B6-5 Radiography Checklist

This audit was performed to assess Hanford's ability to characterize S5000 and S3000 retrievably stored and newly generated debris and homogeneous solids waste streams. Hanford radiography operations are performed using a RTR system in the WRAP facility. Hanford has controls to allow the operator to enhance the image quality of the radiograph, annotate the videotape with text, provide narration with video, rotate the drum as it is imaged, enlarge the image, and pan up and down the container. These controls allow site personnel to view drums while recording the examination on an audio/videotape.

Five data packages and associated videotapes were reviewed and the operations observed. The associated documentation and batch data reports, evaluated for this activity, included the following: WR-TB-2003-035, WR-TB-2003-051, WR-TB-2002-085, WR-TB-2003-017, and WR-TB-2002-092. These reports are included in Attachment 3. Training course material and the RTR test drums (no specific drum number) were reviewed for adequacy.

Objective evidence was evaluated for RTR equipment and operations. The RTR process was evaluated and verified through review of the documentation noted above. Batch data reports and RTR videotapes were selected to evaluate the documentation of the RTR process.

Radiography equipment maintenance and daily checks were evaluated against the WAP requirements as implemented in the RTR procedures, and were found to be satisfactory. Radiography results are properly reported on standard forms and are adequately reviewed, as required by the WAP. Copies of the forms are included in the batch data reports listed in Attachment 3.

One deficiency was noted during the assessment of the project-level V&V process. The deficiency addressed use of a container rejected by RTR as the randomly selected drum for the VE over-check of the RTR process, and is described in Section 6.1. This CAQ was determined to be non-significant and has been satisfactorily resolved and closed (CBFO CAR 03-062).

The audit team concluded that Hanford satisfactorily implements the WIPP WAP radiography requirements.

5.2.6 B6-6 VE Checklist

This audit was performed to assess Hanford's ability to characterize S5000 and S3000, retrievably stored and newly generated debris and homogeneous solids waste streams. Visual examinations include both the QC check performed on radiography results and observations made during initial waste packaging. Hanford was audited to determine

the effectiveness of VE as the QC check on RTR. VE to support radiography is recorded on audio/videotape and documented on standard forms.

Hanford VE activities were evaluated and verified by conducting personnel interviews, reviewing videotapes, and evaluating a batch data report WR-TB-2002-035 and associated documentation (included in Attachment 3).

The VE procedure used is WRP1-OP-0729, *Visual Examination*. The audit team found the procedure to be adequate in meeting the WAP requirements.

The audit team assessed the random selection procedure, WMH-400, Section 7.1.4, *Sampling Design and Data Analysis for RCRA Characterization and Visual Examination of Retrievably Stored Waste*, which is used to select drums to confirm radiography results. The audit team also assessed Procedures WHM-400, Section 7.1.6, *TRU Waste Project Level Data Validation and Verification*, which is used to determine the miscertification rate for the site, and WRP1-OP-0726, *TRU Loadout Glovebox Operation*, which is used to document the condition and contents of repackaged waste.

The training course content for operators and VE experts was reviewed to verify that all WAP requirements were captured in the course. The course material is included in Attachment 3. No deficiencies were noted in this area. One issue of no current deficiency but possible future impact in the area of videotape quality is discussed in Section 7.1, Observation 2.

The audit team concluded that Hanford is satisfactorily implementing the WIPP WAP VE requirements.

5.2.7 B6-6 VE Checklist (VET)

The audit also assessed and evaluated VET operations and documentation applied to S5000 and S3000 wastes characterized at the PFP facility to the requirements specified in the WIPP WAP.

The specific waste summary categories subject to the VET that were assessed during this audit were SS&C from the remote mechanical line "C" (RMC) at the PFP (S5000, debris); and Rocky Flats ash (S3000, homogenous solids). The VE technique requirements for use at Hanford on TRU waste are promulgated to the waste generators by the TRU Site Project Office in Procedure WMP-400, Section 7.1.10, *TRU Waste Visual Examination Technique*. This is a generic procedure that applies to any waste generator performing VET of TRU waste for WIPP characterization at Hanford. The PFP has developed two procedures based on the requirements of WMP-400, Section 7.1.10. Procedure ZO-160-080, *Pipe-N-Go Operations*, provides the instructions for repackaging and performing VET on residues. The procedure requires that residues be crushed and sieved during repackaging, and "blended down" with silica sand to reduce plutonium concentrations. Procedure ZO-160-081, *Pu/Al Alloys Operations*, was limited to performing VET of the residue to be repackaged into a vented package configuration.

Hanford VET activities were evaluated and verified by conducting personnel interviews and reviewing VET batch data reports PFP-VE-2002-019, PFP-VE-2002-012, and PFP-VE-2001-009, and associated documentation.

The training of VET operators was reviewed and found to meet the requirements of the TRU Waste Program. No deficiencies were identified in the area of VET and repackaging in PFP. The audit team determined that the written procedures for VET and repackaging were adequate and that the VET and repackaging processes were satisfactorily implemented and effective.

6.0 SUMMARY OF DEFICIENCIES

6.1 Corrective Action Reports

During the audit, the audit team may identify Conditions Adverse to Quality (CAQ) and document such conditions on Corrective Action Reports (CAR).

Condition Adverse to Quality (CAQ) – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.

Significant Condition Adverse to Quality – A condition which, if uncorrected, could have a serious effect on safety, operability, waste confinement, TRU waste site certification, compliance demonstration, or the effective implementation of the QA program.

Two WAP-related deficiencies, requiring the issuance of two CARs, were identified during the audit. The first CAR describes an RTR examination of a drum. The examination identified a prohibited item, and the drum was randomly selected for VE as an over-check of the RTR process. However, the drum was not rejected for the prohibited item and was subsequently sent for VE. Additionally, an alternate “certified” drum was not selected for VE. In the second CAR, RTR identified drums containing leaded gloves that AK had placed in the non-mixed PFP debris inventory. These drums then moved to the mixed-debris stream, but a hit was not taken for AK accuracy, resulting in an inaccurate assessment of the accuracy of the AK record. Hanford AK Procedure WMP-400, Section 7.1.9, R. 13, part 4.6.8, calls for the site quality assurance officer (SQA) to calculate AK accuracy and report the results in an AK Performance Report, Attachment 9 of the Hanford procedure. The examples of these reports reviewed by the auditors did not account for the discrepancies between the AK record and RTR results noted above. These CAQs have been corrected and the CARs have been closed (CBFO CARs 03-062 and 03-064 respectively).

6.2 Deficiencies Corrected During the Audit

During the audit, the audit team may identify CAQs. The audit team members and the Audit Team Leader (ATL) evaluate the CAQs to determine if they are significant using the following definitions. Once a determination is made that the CAQ is not significant, the audit team members, in conjunction with the ATL, determine if the CAQ is an isolated case requiring only remedial action and therefore can be Corrected During the Audit (CDA). Upon determination that the CAQ is isolated, the audit team members, in

conjunction with the ATL, evaluate/verify any objective evidence/actions submitted or taken by the audited organization and determine if the condition was corrected in an acceptable manner. Once it has been determined that the CAQ has been corrected, the ATL categorizes the condition as a CDA.

Condition Adverse to Quality (CAQ) – Term used in reference to failures, malfunctions, deficiencies, defective items, and nonconformances.

Corrected During the Audit (CDA) – Isolated deficiencies that do not require a root cause determination or actions to preclude recurrence, and where correction of the deficiency can be verified prior to the end of the audit. Examples include one or two minor changes required to correct a procedure (isolated), one or two forms not signed or dated (isolated), and one or two individuals who have not completed a reading assignment.

Four WAP-related discrepancies that resulted in CDAs were identified and corrected during this audit. The isolated deficiencies and CDAs are as follows:

1. A discrepancy on generation dates for the Rocky Flats ash waste stream between the Hanford AK Summary M4T00-DCO-03-062 RFETS01 R2 and the corresponding RFETS AK Summary was duly noted and corrected.
2. The AK radionuclide information in the AK Summary Document for the Rocky Flats ash was insufficient and did not identify the plutonium as weapons grade. This was satisfactorily corrected during the audit.
3. The type of AK source document on the AK Source Document Reference List for ash and SS&C cannot be distinguished without a cross-reference guide that is not noted. This information should be listed on the reference list. This issue was satisfactorily resolved during the audit.
4. The following three instructions in the AK procedure could not be found as objective evidence in the Hanford AK Summary Report for RFETS ash: 1) identifies the presence or absence of ferrous/non-ferrous metals; 2) identifies the presence or absence of cellulose, plastics and rubber; and 3) identifies applicable waste material parameters present, using designations specified in the QAPjP, Table B3-1, and documents assumptions made. This issue was satisfactorily resolved during the audit.

7.0 SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS

During the audit, the audit team may identify conditions that warrant input by the audit team to the audited organization regarding potential problems or suggestions for improvement. The audit team members, in conjunction with the ATL, evaluate these conditions and classify them as Observations or Recommendations, using the following definitions. Once a determination is made, the audit team members, in conjunction with the ATL, categorize the conditions appropriately.

Observation – A condition that, if not controlled, could result in a CAQ.

Recommendations – Suggestions that are directed toward identifying opportunities for improvement and enhancing methods of implementing requirements.

7.1 Observations

The following two WAP-related issues, resulting in two Observations, were identified during the audit:

1. For the Rocky Flats ash solids waste stream, the following documents are not available to allow completion of the AK audit (traceability), making the AK portion of the audit for solids indeterminate. 1) WSPF; 2) DQO Checklist; 3) CIS; 4) AK Waste Stream Summary; and 5) AK Confirmation Checklist (NOTE: Rocky Flats ash is subject to further characterization activity/documentation and assessment).
2. Some of the VE videotapes for the exam of drums are of poor quality. There is intermittent static throughout the tapes (RHZ-103-A15582 & RHZ-212-A16503).

It was determined that while deficiencies did not currently exist, there is a potential for future problems. The personnel contacted were encouraged to monitor these areas.

7.2 Recommendations

The following four WAP-related Recommendations were provided to Hanford management during the audit:

1. It is recommended that the program develop, proceduralize, and implement, an electronic tracking system for the TRU waste inventory.
2. HSG graphical reports do not show distinct peak labels where several peak values are close in magnitude. It is recommended that software be revised to separate labels and make printing legible.
3. AK Summaries should be examined to ensure that technical information is adequately presented. For example, the SS&C waste stream discussion implies that the waste may be up to 49% slag, which is a homogenous solid. The AK expert clarified, however, that anticipated slag is only about 5%, and the material is milled to enhance homogeneity. This should be clarified in the AK Summary. Also, the Mixed Plutonium Finishing Plant Debris (MPFPD) mixed debris AK report indicates that debris from this waste stream will be generated through 2007 (at least). The site has assigned debris material generated through PFP gloveboxes to the MPFPD waste stream, but the processes used to generate this waste stream do not include actual decontamination and decommissioning (D&D) activities associated with disassembly of the line. Other facilities (such as RFETS) have recognized that D&D requires designation of a separate waste stream. Steps should also be taken to ensure that discussions within text

concerning hazardous waste designations are of adequate detail and are appropriately referenced. For example, in SS&CO1, Rev 3, the discussion on listed waste does not provide references for conclusions drawn, nor does it back-reference document 5481, which does address listed waste to some extent.

4. Procedure 7.1.9, Section 4.3 requires that only general information (presence/absence) be collected for some wastes (such as cellulose). However, it would be more appropriate if this procedure required the collection of information necessary to support waste matrix code determinations, as more specific data could be required.

8.0 LIST OF ATTACHMENTS

Attachment 1: Hanford Personnel Contacted During the Audit
Attachment 2: Corrective Action Supporting Documentation
Attachment 3: Objective Evidence
Attachment 4: Hanford Procedures Audited for A-03-14

HANFORD PERSONNEL CONTACTED				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Ailes, Sid	FH/Duratek Consultant	X	X	X
Arrenholz, Dan	NWI Scientist			X
Bisping, Scott	FH AK Expert	X	X	X
Bottenus, R. Jay	FH WRAP Engineering		X	
Busch, Donna	FH VP Regulatory Compliance			X
Caraway, Mary Jo	TRU Project - WWIS Data Entry		X	
Carlton, Richard	Maintenance/Shipping		X	
Carson, Pete	FH TRU Program - Solid Sampling SQAQ		X	X
Colley, Briana	FH WSCF HSG		X	X
Curfman, E.W.	FH PFP A-Lab Manager			X
Day, Sandy	TRU Project QA, sr. clerk		X	
Decker, Janet	TRU Program, Records Specialist		X	X
DeRosa, David	FH Assistant TRU SPM	X	X	X
Downing, Monty	TRU Program Operations		X	
Dudley J. B.	T-Plant Ops. HSG LNCO		X	
Dunn, Rick	FH Director TRU Program	X	X	X
Edwards, Cheryl	PFP, A-Labs			X
Farwick, Dana G.	FH QA	X		X
French, Mark	DOE-RL TRU Project Lead	X		X
French, David	TRU Program Env. Regs. Solid Sampling		X	
Greager, Eric	FH TRU Project Alternate SMP		X	X
Hale, Joseph	FH Scientist HSG	X	X	

HANFORD PERSONNEL CONTACTED				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Harris, Phillip	WRAP NDA / Operations		X	
Harrison, Rees	PFP Residues - Solid Sampling NCO		X	
Heath, Nettie	FH Records Specialist	X		
Helms, Jubal	TRUPACT II Ops. NCO		X	
Hey, Bruce	FH Chemist		X	
Heath, Nettie	FH Records Specialist	X	X	
Hey, Bruce	FH Scientist		X	
Horhota, Mike	TRU Project QA		X	
Huggins, Stewart	FH Alternate SQAQO	X	X	
Hutchins, Les	FH Environmental Engineer		X	X
Keve, John	Independent Technical Reviewer – NDE Level III		X	
Kover, Karola	FH WMP, Waste Certification Official Alternate, and TRU HSG	X	X	
Maupin, Jim	Site Quality Assurance Officer	X	X	X
McCollum, Rick	FH WMP Calibration Activity Manager	X		
McCormick, Matt	DOE-RL			X
McKenney, Dale	FH Acting Director, Waste Management Project			X
Mischke, Steve	FH TRU Project QA & WRAP FQAQO		X	
Nance, Sheri	FH Alternate SQAQO	X	X	X
Palmer, Mark	WRAP Eng. Auto. Lead		X	
Payton, Steve	PFP Residues Ops. - Solid Sampling		X	
Pingel, Len	FH HSG Chemist		X	
Richards, Dave	WRAP Operators		X	
Roberts, Kay	TRU Program	X	X	X
Ruhlman, W.A. "Bill"	DOE-RL Facility Rep. WRAP	X		X

HANFORD PERSONNEL CONTACTED				
NAME	ORG/TITLE	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Skeels, Brian	FH PFP Project Manager	X	X	X
Shrader, Todd	DOE-RL TRU Program Manager			X
Smith, Douglas	T-Plant Ops. HSG NCO		X	
Smith, Kathryn	DFSNW, TRU Prog. TCO	X	X	X
Smith, Tim	PFP - Residues - Solid Sampling NCO		X	
Stauffer, Markus	WSCF HSG Lab Supervisor		X	
Sutter, Caroline	FH PFP Residues Manager	X	X	
Svoboda, Ken	FH TRU Lead Process/WCO	X	X	
Taylor, Charles	WRAP NDE Technical Supervisor		X	
Thomas, Debra	FH Training Administrator	X		
Valante, Gayle	TRU Program, Clerical		X	X
Van Slyke, Jan	FH TRU Project - Procedures / Admin. Lead	X	X	X
Varljen, Greg	FH WRAP Verification	X		
Wallace, Jeanne	DOE-RL	X		
Westsik, George	FH PFP NDA Scientist	X	X	X
Wright, Allison	DOE-RL, Residues PM	X		X
Wright, Frank	PDP Residues – Solid Sampling		X	

HANFORD PROCEDURES AUDITED FOR A-03-14		
NUMBER	PROCEDURE NUMBER	TITLE
1.	WMP-400, section 1.2.1	TRU Training and Qualification Plan
2.	WMP-400, section 1.2.2	Qualification and Certification of Inspection and Test Personnel
3.	WMP-400, section 1.3.1	TRU Corrective Action Management
4.	WMP-400, section 1.3.2	TRU Nonconforming Item Reporting and Control System
5.	WMP-400, section 1.3.3	TRU Corrective Action Reporting and Control
6.	WMP-400, section 1.4.1	TRU Document Control
7.	WMP-400, section 1.5.1	TRU Records Management
8.	WMP-400, section 2.4.4	TRU Control of Measuring, Test, and Data Collecting Equipment
9.	WMP-400, section 7.1.1	TRU Waste DQOs Reconciliation and Reporting
10.	WMP-400, section 7.1.3	Transuranic Waste Repackaging, Visual Examination, and Sampling
11.	WMP-400, section 7.1.4	Sampling Design and Data Analysis for RCRA Characterization and Visual Examination of Retrievably Stored Waste
12.	WMP-400, section 7.1.5	WWIS Data Reporting and Entry
13.	WMP-400, section 7.1.6	TRU Waste Project Level Data Validation and Verification
14.	WMP-400, section 7.1.7	TRU Waste Sample and Waste Container Management Activities
15.	WMP-400, section 7.1.9	Acceptable Knowledge Documentation Management
16.	WMP-400, section 7.1.10	TRU Waste VE Technique
17.	WMP-400, section 8.1.1	Logkeeping Practices for WIPP Activities in Special Analytical Support
18.	WMP-400, section 8.1.8	Data Management for Headspace Gas Results
19.	WMP-350, section 2.3	Data Management of NDE/NDA Results
20.	WRP1-OP-0722	TRU RWM Glovebox Automatic Mode Operation
21.	WRP1-OP-0725	TRU Sorting Glovebox Operation
22.	WRP1-OP-0726	TRU Loadout Gloveboxes Operation
23.	WRP1-OP-0729	Visual Examination
24.	WRP1-OP-0908	Operation of the Drum NDE System
25.	DO-080-009	Obtain Headspace Gas Samples of TRU Waste Containers
26.	LA-523-410	Determination of VOCs in TRU/Mixed Waste Container Headspace
27.	LO-080-407	Cleaning SUMMA Canisters
28.	LO-090-450	TRU Project Sample CO-C, Storage, Acceptance, and Disposal
29.	ZO-160-080	Pipe-n-Go Processing
30.	ZO-160-081	Pu/Al Alloys Operation
31.	ZO-160-082	Residue Solid Sampling
32.	FSP-PFP-5-8, section 16.2	Data Management